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CYSTIC TUMOURS OF THE BREAST.

By THOMAS BRYANT.

UNDER this heading I propose to group all tumours of the mammary glands made up of cysts, whether those cysts are multiple or single, whether they contain fluid alone or are more or less filled with adeno-fibromatous, adeno-sarcomatous, or adeno-carcinomatous intracystic growths.

I shall not stop to inquire into the different methods by which cysts are formed, since I believe it to be impossible *clinically* to make out, otherwise than in exceptional cases, whether the cysts are due to an obstruction of a galactophorous main or branch duct (retention cyst); or to the exudation of fluid into the intercellular spaces of the connective tissue of the breast (interstitial cysts); or to the growth of papules into a duct or from the connective tissue of the breast and their subsequent junction. Neither can the surgeon speak with certainty in any cases as to the absence or presence of an intracystic growth, or as to the nature of the growth.

In a large proportion of cases in which the cyst contains no intracystic growths a diagnosis of its nature can, however, be made, and the diagnosis is then more determined by signs and symptoms other than those associated with the presence of a cyst. These points attention will be drawn later on.

I would, however, for the sake of convenience and possibly of completeness, divide the subject up into certain sections, and consider:

1. The cystic degenerations of the breast as met with in the

old, as well as in glands which have long ceased to be active (involution cysts as they are called).

2nd. Cystic tumours of the gland, single or multiple, of glandular, duct, or connective-tissue formation *without* intracystic growths.

And, 3rdly, cystic tumours of the breast of whatever kind in which papillomatous, adenomatous, sarcomatous, or carcinomatous intracystic growths are present.

These three classes will be considered in order.

GROUP I.—*The cystic degeneration of the gland as met with either in the old or obsolete gland.*

This condition must without doubt be recognised, for it is found in the breasts either of the old or of those in which the glands have ceased to be active and are, as it were, undergoing involution changes.

It may be that a single lobe or lobule is undergoing this special form of degeneration, but more probably the change will have affected the whole gland, which on dissection will be found to be made up of innumerable small cysts, varying from the size of a hemp-seed—the more common size—to that of a pea, whilst in exceptional cases these dimensions, in isolated cysts, may be considerably exceeded.

The cysts appear more as a series of dilatations of the lactiferous ducts (varicose ducts) than of the gland structure, although in certain cases both ducts and gland structure are involved.

On dissecting these cases and on separating the ducts, or rather unravelling them, the gland as a whole may be involved, and in a dissection I made many years ago the breast appeared, when suspended by the nipple, to be made up of strings of small cysts connected together by the main and branch ducts. Some of the cysts had direct tubular communication with the neighbouring cysts, as proved by the passage of bristles through the ducts from one cyst to another, or by the fact that many of the cysts and ducts could be inflated by means of a fine tube introduced into one or other of the nipple-ducts. In many cases, however, this direct communication cannot be made out.

These cysts when unopened have usually a greenish or black appearance, and when opened they are found to contain a blackish viscid or mucoid fluid, more or less coagulable by heat, and mixed at times with fat and epithelial elements, such being the products of degenerating epithelium.

The breast, thus affected, feels on manipulation in thin subjects as a coarse gland, with here and there a pea-like tumour, whilst in fat women the change often cannot be clinically recognised.

This change is rarely associated with pain, or with a greater amount than can be described as uneasiness. There is seldom any discharge from the nipple in these cases although there may be at times. Why there should not be a discharge always can only be explained by the fact that the ducts become obstructed, and probably by their epithelial elements.

In exceptional cases some enlargement takes place of a single cyst or group of cysts, and under such circumstances a cystic tumour is formed, for which surgical advice is sought. I have seen many of these cases. In some the cyst was single and relief was given by simply drawing off the fluid by means of a small trocar and cannula; in other cases two or more cysts existed; in a few they were still more numerous and showed signs of activity, so that excision of the affected lobule or whole gland was required.

In not a few cases the cysts have become the seat of intracystic growths, sarcomatous (Case 30), adenomatous (Cases 17, 18, and 19), or cancerous (Case 33), for which extirpation of the whole gland has been necessary. To these attention will be drawn later on.

What I would wish now to be recognised is the fact that there is in the mammary glands which have long ceased to be active, and in those of women past child-bearing, a cystic degeneration of their ducts and glandular structure which may simply remain as such or take on active changes. Under the latter circumstances a cyst or many cysts may either enlarge so as mechanically to cause trouble or become the seat of intracystic, adenomatous, sarcomatous, or carcinomatous growth which will run the usual course of such tumours.

GROUP II.—*Cystic tumours of the gland—single or multiple—of glandular, duct, or connective-tissue formation without intracystic growths.*

That these are not uncommon in practice must be fully recognised, although it must be acknowledged that they are too often not diagnosed until by some error they have been subjected to surgical operative treatment, when their true nature has been made manifest.

I take it, few surgeons have been so fortunate as not to have removed a breast for a supposed cancer which turned out to be a cyst; and fewer still who have not, as spectators of such a case, been well sprinkled with the fluid of a tense cyst accidentally opened by the hand of a surgeon in his attempt to cut into or excise what he regarded as a solid tumour.

Formation of cysts.—These cysts are doubtless developed in several ways. Some are unquestionably “*duct-cysts*,” that is, they are formed first by an obstructed and subsequently by a dilated irritated duct, the duct being more commonly a branch than a main duct, and occasionally a duct leading directly into an acinus of the gland. When the branch is a large one the cyst is likely to be single; when it is placed nearer the gland structure the cysts are more likely to be numerous. The cystic tumour in the former case appears as a globular, tense, more or less deeply placed growth; and in the latter as an unequal enlargement of one of the lobules of the gland, with a more or less bossy outline and semi-fluctuating feel; this latter symptom turning much upon the size the cysts attain and the depth of gland structure which covers them in.

The fluid contained by these cysts varies much. In the majority of cases it is clear and serous, in others it will be brown or slightly blood stained, in a few cases it will be viscid and mucoid. When it is deeply blood stained or sanguineous the surgeon should suspect that it is not a simple but a proliferating cyst in which some intracystic growth exists. In almost all cases the fluid will be albuminous, at any rate, I have not yet met with an example in which it was otherwise. At times fluid may escape naturally or may be pressed from the nipple, and when this takes place the diagnosis of a duct or glandular cyst may with confidence be made. In half the cases of this affec-

tion no such symptom will, however, be found, but this fact need not diminish the value of the symptom for diagnostic purposes when it is present.

Others of the cysts have a "*connective-tissue origin*." That is they originate outside the ducts of the gland or the gland structure and are formed by the effusion of fluid into the connective tissue which binds the lobes and lobules of the gland together. Such cases are usually single but may be multiple. They are commonly of slow formation and as a result have thick walls. They are always smooth on their inner surface, and as a rule contain serous fluid. At times the fluid is, however, mucoid or dark. When the cyst appears in the breast of a thin woman its tense globular outline, unassociated with any of the symptoms which are recognised as characterising the existence of a cancerous or other tumour, should suggest its nature as well as treatment, for the puncture of the swelling with a fine aspirating needle will prove much.

When the cyst shows itself in the breast of a fat subject the diagnosis must be difficult, but its true nature should ever be suspected, even when all other symptoms of more solid growths have by the lapse of time failed to manifest themselves. The more breast tissue there is to surround a cyst or cystic tumour the greater the difficulty of diagnosis. The longer the tumour has existed without the manifestation of the well-recognised symptoms of cancer or other growth the stronger the probability of its being cystic. In all doubtful cases, however, the fine exploring needle of an aspirating syringe will avail much for diagnostic purposes. In but few of these cases can the surgeon without exploration diagnose between the simple cyst and the cyst with proliferating intracystic growth. Simple cysts of the breast exist and in many cases never develop into anything else or become the seat of solid growth. With the majority of cystic tumours this, however, is not the case, for what may seem to be the most simple or innocuous cyst may be expected, if not cured, to become the seat of some proliferating intracystic growth, which will be adenomatous, sarcomatous, or carcinomatous, according to the tendency of the tissue to form and of the individual to develop either special variety.

The mere presence of a cyst in the mammary gland must be

accepted as evidence of some unnatural local irritation, inflammatory or otherwise, whether that irritation has originated in, or become localised about, a gland-duct, lobule of gland, or connective tissue. If the irritation is subdued or subsides, a cure or at any rate no fresh development of the local trouble may be looked for; but should the local irritation continue or intensify, fresh developments must be expected, and such of necessity will assume the form of a new growth either of the glandular, epithelial, or connective-tissue type, and lead on to the formation of an adenomatous, epitheliomatous, or sarcomatous cystic growth, to which attention will now be drawn. In rare cases the cyst will suppurate and undergo a spontaneous cure (Case 5).

GROUP III.—*Cystic tumours of the breast of whatever kind in which papillomatous, adenomatous, sarcomatous, or carcinomatous intracystic growths are present.*

If, clinically, simple cystic tumours of the breast are fairly common, pathologically they must be pronounced to be comparatively rare, for it is, I think, indisputable that in the majority of cystic tumours of the breast, of whatever character, of duct-cysts, gland-cysts, or connective-tissue cysts, some solid element can usually be found proliferating from their lining walls, either in the shape of a small sessile or pedunculated outgrowth or of a solid tumour composed of glandular, epithelial, or connective-tissue elements; the nature of the growth being determined by the seat and persistency of the local source of irritation which originated the formation of the cyst. When the cyst is single the growth will of necessity involve it alone. When multiple some of the cysts may be simple or non-proliferating while others are proliferating; the association of the two kinds in the same gland being not uncommon. The surgeon consequently meets with cystic tumours of the breast in which in one case *papillomatous growths* are present; the papilloma being a simple outgrowth of the cyst wall in the same way as the same growth may spring from the nipple or other structure. Whilst in another case the cyst may have an *adenoid growth* hanging or springing from its walls, the growth appearing either as a pedunculated intracystic growth washed

with the cyst contents, or the cyst may be filled with sarcomatous or adenoid tissue either of a loose or more solid structure ; the tumour in the latter case, when the cyst is full, losing much of its cystic character and approaching the more solid kind, whilst the intermediate conditions between these two extremes suggest and give support to the view which some pathologists entertain, that these solid adeno-sarcomatous or fibromatous tumours as a rule originate in cysts and only differ in the degree in which the cyst cavity is filled.

In many cases doubtless what appears to be an intracystic growth is nothing more than a growth originating in the connective or glandular structure outside the cyst but projecting into it, and having its surface bathed with fluid, the fluid being either the secretion of the cyst wall or an exudation from the growth itself into the cyst cavity. The same remarks are also applicable to sarcomatous and carcinomatous tumours, for without doubt a large number of those beginning as cystic tumours of the breast pass on to become sarcomatous and carcinomatous ; the connective-tissue element in the former case and the epithelial element in the latter so increasing and filling what was at one time simply a cyst or cysts as clinically to form what is now known as a cystic sarcomatous, cystic adenomatous, or cystic carcinomatous tumour ; the three varieties in the cystic disease maintaining the same clinical features that characterise the more solid kinds, the symptoms of the solid and the cystic being the same in each, with the addition in the latter of the cyst element. The diagnosis of a cystic adenoma, cystic adeno-fibroma, sarcoma, or carcinoma is consequently to be determined by the same points as are known to characterise a solid adeno-fibroma, adenoma, adeno-sarcoma, or carcinoma, with the addition of such clinical symptoms as are clearly referable to the existence of cysts.

DIAGNOSIS OF CYSTIC TUMOURS.

In the examination of every tumour of the breast, and particularly of one in a woman over thirty-five, the surgeon as a matter of habit should allow the possibility of the case having a cystic origin to pass before his mind. By so doing he will

not only prevent errors of practice which may be grievous, but at the same time he will guard against sources of serious mortification, for, I take it, there are few things more humiliating to a surgeon than an error in practice based upon a wrong diagnosis, when the error is not due to the inherent difficulties of the case, but, to a want of care. When the tumour is in the breast of a woman over forty years of age this caution is more necessary, for cystic tumours of all kinds are more prone to occur in women over thirty-five and past the prime of life than in younger subjects. In 1861 I, however, removed a sero-cystic tumour from the breast of a girl aged twenty which had been growing for three years and at the time of operation measured twenty-two inches in circumference, and weighed after removal two and a half pounds. This preparation is preserved in the Guy's museum, prep. No. 2295, drawing 480²⁰, model 40¹⁰, with another, marked 2297²⁰, in which a cystic-duct sarcoma of one and a half years' growth was removed from a girl aged fifteen. When the tumour seems part of the breast-gland itself and appears as a single or possibly double growth in one or more lobes of the gland; when the swelling is very hard and tense and is not the seat of pain even when handled; when it has existed for several years and has given rise to no other symptoms than such as are referable to its mechanical presence, the probabilities of the tumour being cystic are very great. When the swelling is bossy or botryoidal and fluctuation can be detected in some of its parts; when with the swelling there is a discharge from the nipple and this discharge can be increased by pressure or manipulation, the diagnosis of cystic disease is evident, and with the nipple discharge the diagnosis of a duct-cyst is clear.

Whether the cysts be simple or proliferous is another question, and if the latter, the nature of the growth they contain is still a third. In a [general sense it may be said that a single cyst is more probably simple than when the cysts are multiple and form a polycystic tumour; that is, when a lobule of a gland is expanded by the presence of a single cyst that cyst is more likely to be of a simple kind than when the cystic disease has involved more of the lobule. Simple polycystic disease of the breast is a rare affection, except as a result of general glandular degeneration. When a discharge

from the nipple exists, and that discharge is bloody, the probabilities of a cyst containing some intracystic growth, however small, should be recognised, since it is from the vessels of the intracystic growth that the bleeding as a rule takes place. Simple cysts rarely bleed. When the bleeding is encouraged by or has followed manipulation, the probabilities of the cyst containing an intracystic growth are very great. When a cystic tumour exists in a lobule of the gland as a fluctuating swelling in some parts and a more solid one in others, the diagnosis of solid with cystic growth is tolerably clear; and when with this there is a free discharge of a bloody kind from the nipple, the diagnosis of cystic duct and glandular disease is highly probable. These lobular cystic tumours often present a somewhat typical shape, that of a pear the narrow part of which is represented by the nipple. Few of these tumours cause pain. Advice is sought as a rule either on account of the tumour or on account of the nipple discharge, not from pain.

The *diagnosis of a cystic adeno-fibroma or adeno-sarcoma* is to be made out by attention to the same points as help the diagnosis of these growths when uncomplicated with cysts. That is, a cystic adeno-fibromatous or sarcomatous growth simply troubles from its size or from its nipple discharge. By its growth it expands the integument over it and spreads out such portions of the breast-gland as may not be involved, but it in no other way involves its coverings. The skin may be stretched even to a rupture, but even then the skin as tissue will be neither invaded nor infiltrated with disease. The cysts themselves may even burst and discharge their contents externally, but under such circumstances the integument that fringes the edges of the ruptured orifice will still be seen free, and can be readily distinguished even from the extruded or extruding intracystic fungating contents (Case 23). The nipple may be so flattened out as nearly to be indistinguishable, but it will only in very exceptional cases (Case 22) be drawn in by the disease, as seen so frequently in cancer; and even should it be drawn in, inquiry will generally reveal the fact that such a condition was either congenital, or that some cicatrix of a former abscess had altered its normal shape. Should the cyst be, however, more central and separate the lactiferous ducts, nipple retraction is to be expected.

The lymphatic glands (axillary and clavicular) will rarely be involved; when they are they will be affected actively from lymphatic irritation rather than from lymphatic absorption, and under such circumstances the enlargement is more frequent when the cysts have burst through and irritated the skin than under other circumstances. In some forms of rapidly growing cystic sarcomatous as well as solid sarcomatous tumours, the lymphatic glands are, however, seriously affected.

The *diagnosis of cystic carcinoma* will turn upon the same points as that of the more common kind of cancer. Though the growth may have originated in a tube or cyst it will not long be confined within its capsule, for, obedient to its nature, it will invade its cyst walls (Cases 35, 36) and creep into the tissue outside; it will then spread into the neighbouring parts by the one marked way in which carcinomatous tumours locally spread, viz. by steady and progressive infiltration or local infection; the carcinoma in its progress having first infiltrated the cyst in which it originated, then the tissues outside the cyst, later on those which surround these, and last of all the integument itself; the infiltration of the integument first showing itself as a "dimpling" of the surface, next as a "puckering" of the skin, thirdly as an "infiltration" of the skin, and lastly as an ulceration. Should a cyst so enlarge as to encroach upon the skin and to infiltrate it and later on rupture through it, the intracystic carcinomatous growth will project and grow through the opening, but the edges of the orifice through which the intracystic growth projects will be found infiltrated, everted, and involved in the disease, and not, as described in the cases of cystic sarcoma, simply ruptured, the infiltrating tendency of the disease being marked in all its stages, from its first to its last. The intracystic growth will never project, and fungate in the way of sarcomatous growths. Should the nipple be affected by the disease, it may first be as a conduit for the discharge through the milk-ducts, but later on, when the disease has left the cyst and invaded the tissues outside its borders, it will be affected in other ways. When the tumour by its growth has drawn upon the suspensory ligaments of the gland and ducts of the nipple some retraction of the nipple will ensue, and later on, should the nipple itself become materially infiltrated, there may be actual projection. At times there may be such infil-

tration and contraction of the tissues around the base of the nipple as to produce œdema of it from blood stasis and in rarer cases even sloughing.

The lymphatic glands, axillary or clavicular, will become affected in the cystic form of carcinoma as they are known to be in the non-cystic kind, and they will be affected in the same way. In fact, the progress of a case of cystic carcinoma is similar in kind to that of the more solid form. At the beginning it may possibly be slower, but when the disease has extended beyond the cyst wall or walls I am disposed to think it is often more rapid.

TREATMENT OF CYSTIC DISEASE OF THE BREAST.

In all cases in which the true cystic nature of the tumour is doubtful an exploratory puncture with a small aspirating needle should be made, not only for diagnostic purposes, but with the reasonable prospect of retarding if not arresting the progress of the disease, and this hope may reasonably exist should the disease consist of the dilatation of a single duct, for I can recall not a few examples of what turned out to be simple serous cysts of the breast which had been tapped for diagnostic purposes in which after the lapse of years no return of the trouble has taken place (Cases 3, 4). When a simple tapping has proved ineffectual or is inapplicable, an incision into the cyst, with free drainage, and healing by granulation, may bring about a cure, but these means should only be adopted when the cysts on being incised have been found quite free from all signs of intracystic growths and the cyst is single (Cases 6, 7, 8, and 9). When more than one cyst exists in a lobe this treatment is hardly applicable, and the safer practice is to dissect out the cysts with enough of the surrounding gland to make it reasonably probable that the disease has been wholly removed (Case 11). When the cyst contains an intracystic growth it must be freely excised (Case 15), and should more than one such cyst be made out the whole gland had better be extirpated, for all proliferating cysts are prone to grow, and the breast-glands of such as contain them are rarely only locally implicated. I have on many occasions after the removal of a cystic sarcoma-

tous tumour found such portions of the gland as seemed to be healthy the seat of the same disease only in miniature, and this fact fairly suggests that the disease, although palpable in one part and apparently local, is really a general gland disease, and that under such circumstances the whole gland had better be excised.

In the more solid forms of cystic sarcoma and cystic carcinoma early excision is a rule of practice which should never be deviated from.

In exceptional cases a cyst inflames and suppurates; such should be treated as an ordinary abscess, by incision, antiseptic irrigation, and drainage (Case 5).

TABLE OF CASES.

CASE

1. Mrs. T—, æt. 52. Cystic degeneration of breast simulating cancer. Plate I, fig. 1.
2. Mrs. S—, æt. 34. Cystic degeneration of breast which has never secreted milk.
3. Susan B—, æt. 24. Duct-cyst in breast; retracted nipple. Tapped and cured.
4. Eliza T—, æt. 43. Duct-cyst in breast. Tapped.
5. Eliza H—, æt. 40. Cyst in breast which suppurated.
6. Louisa N—, æt. 45. Cyst in breast, treated by incision.
7. H. S—, æt. 35. Cyst in breast treated by incision.
8. Mary R—, æt. 40. Cyst in breast treated by incision.
9. Marg. V—, æt. 37. Cyst in breast simulating adenofibroma; exploratory incision. Cured.
10. Ann T—, æt. 47. Cyst in breast mistaken for cancer; excision of breast.
11. Mrs. S—, æt. 50. Sero-cystic disease of breast; removal of one lobe in which cysts were large. Inflammation of remaining portion of gland. Cured.
12. Miss D—, æt. 34. Sero-cystic disease of breast after injury; removal of gland. Cured.
13. Mrs. R—, æt. 40. Sero-cystic disease of breast; excision. Well six years later.
14. Mrs. S—, æt. 39. Sero-cystic disease of breast; excision. Well eight years later.

CASE

15. Mrs. D—, æt. 45. Cystic (duct) adenoma of breast; excision of lobe. Cured.
16. Catherine K—, æt. 71. Cystic adeno-fibroma; excision. Cure. Path. Soc. Trans.
17. Mrs. T—, æt. 54. Cystic-duct adenoma. Plate II, figs. 3, 4.
18. Susan W—, æt. 43. Cystic-duct adenoma; excised. Plate II, fig. 2.
19. Harriet W—, æt. 47. Cystic-duct adenoma; excised.
20. Mrs. G—, æt. 45. Cystic-duct sarcoma. Tapped.
21. Mrs. B—, æt. 42. Cystic sarcoma of breast; excised. Well seven years later.
22. Mrs. S—, æt. 50. Cystic spindle-celled sarcoma; retracted nipple; excision. Well eight years later.
23. Mrs. S—, æt. 71. Cystic spindle-celled sarcoma; rupture of cyst; hæmorrhage; excision. Cured.
24. Clara W—, æt. 43. Cystic sarcoma; rupture of cyst. No operation.
25. Mrs. R—, æt. 63. Cystic sarcoma; rupture of cyst. No operation.
26. Mrs. C—, æt. 43. Cystic sarcoma; rupture of cyst after suppuration. No operation.
27. Mrs. S—, æt. 70. Cystic sarcoma. No operation.
28. Rebecca B—, æt. 40. Cystic fibroma of breast; tumour removed. Cured.
29. Eliza M—, æt. 36. Recurrent cystic spindle-celled sarcoma; excision of breast. Cured.
30. Eliza A—, æt. 45. Cystic-duct sarcoma of breast. Plate II, fig. 1. Excision of gland. Cured.
31. Miss C—, æt. 46. Cystic adeno-sarcoma of breast; excision. Plate I, figs. 2, 3, 4.
32. Dora G—, æt. 53. Cystic sarcoma; ulceration of skin. Excision of breast; well three years later.
33. Miss S—, æt. 45. Cystic carcinoma of breast; excision; eighteen months well. Fig. 2 and Plate I, fig. 5.
34. Miss B—, æt. 43. Cystic-duct carcinoma; excision. Cured.
35. Sarah C—, æt. 44. Cancer of breast, following cystic disease.
36. Mrs. G—, æt. 58. Cystic carcinoma following cystic disease.

CASE

37. Mrs. S—, æt. 42. Carcinoma following cystic degeneration of gland; excision; return of disease after five years.
38. Ann C—, æt. 60. Cystic degeneration of a carcinomatous breast.
39. Ann C—, æt. 49. Cystic carcinoma of breast; excised.
40. Harriet A—, æt. 70. Cystic carcinoma of breast; excised.
41. Mary W—, æt. 50. Carcinoma of breast the subject of cystic degeneration.
42. Jane R—, æt. 47. Cystic carcinoma, recurrent.
43. Mrs. W—, æt. 60. Cystic sarcoma of one breast; removed; carcinoma of opposite breast nine years later.
44. Mrs. R—, æt. 83. Cystic carcinoma of breast.

CASES.

CASE 1. *Involution cysts of breast which had long ceased to be active, simulating cancer; excision of gland; recovery.*—Mrs. T—, æt. 52, the mother of many children, all of which she suckled, consulted me in May, 1885, for some affection of her right breast which had been slowly coming on for about six months. It began as an enlargement of the axillary lobe and later on as a swelling of the whole breast. At times there was a discharge of a clear fluid from the nipple and some slight pain.

When seen the whole breast was coarsely enlarged and indurated; one lobe, the axillary, seemed to be generally infiltrated with some new material; the other lobes were full of nodules which appeared to be cystic. The nipple was natural, but pressure upon the breast caused from it a slight discharge of a serous fluid. The skin over the breast was healthy, as were the lymphatic glands.

I regarded the case as one of carcinoma with cystic degeneration of the gland and advised excision.

On May 13th the operation was performed and a good recovery rapidly followed.

Description of breast by Mr. Symonds.—Just beneath the nipple was a cyst, one inch in diameter, with a thick dark wall, embedded in condensed breast tissue, containing many smaller

cysts. Everywhere through the breast these cysts existed, and all were filled with a creamy grey fluid, which exuded as so many beads when the breast was squeezed. The galactophorous ducts were filled with this same material, which exuded from the nipple on compression. The whole organ had a uniformly whitish-grey colour, but nowhere was any solid growth visible. The outline of the breast seemed also normal, and there was no infiltration of, or alteration in, the surrounding fat.

Microscopical examination.—The fluid was not examined fresh, but from its resemblance to that seen in similar cases, and from its appearance in the hardened sections, it no doubt was composed of degenerated cells and fatty granules.

The appearances seen in the sections might be shortly described as showing the ordinary breast tissue containing many cysts. There are groups of small tubes cut in various directions, some having a distinct lumen, many showing only a number of irregular cells. These groups are always surrounded by fibrous tissue containing fat vesicles and represent the ordinary breast lobules. The adipose tissue is in some places tolerably abundant. Many of these tubes are much enlarged, having a wide lumen, occupied in many instances by granular matter, and lined with two or more rows of cells. As the accumulation of secretion increases, the central aperture enlarges until a small cyst is formed visible to the naked eye. These changes are all obvious in the illustration (Plate I, fig. 1) and occur in all parts of the breast.

Besides these cysts with a round lumen there are many apertures with a sinuous outline, and many with villi or buds projecting towards the cavity. These are all lined with two or more rows of cells, the inner row being more or less columnar, and taking the stain (logwood) more deeply than the outer or irregular cells. The buds or projections are covered by the same cells and have vessels and fibrous tissue as a basis. The appearances are shown in the illustration.

Again, the largest cysts have a wall composed of lamellæ of fibrous tissue, are lined by large columnar cells, and contain some of the granular material above described. The cells form a definite layer much altered from the regular columnar shape by mutual compression; usually the layer is two cells thick, but there is no regularity in the arrangement. The

fibrous tissue seems no more in amount than that proper to the breast, the cyst formation appearing to be the only morbid change. From the description given above, and from the appearances presented in the drawing, these cysts all seem to form out of the mammary acini and ducts. It is to be noted, in reference to another specimen (Case 31, Plate I, fig. 3), that there are no cell-filled areas. The villi or papillæ projecting from the walls of many of the cavities, and seen especially in the ducts just below the nipple, have received various interpretations. They have been considered to be ingrowths or buds from the wall of the cyst—intracystic growths—this explanation considering the cyst the primary formation. They have also been looked upon as projections into the breast acini or ducts, of portions of a solid fibroma. This view is held by many.

I think, however, that it will be seen from the way in which the fat is disseminated through this specimen that we are not dealing with a solid growth. I mention this point as the drawing given by Cornil and Ranvier to illustrate a “budding fibroma of the breast” is a counterpart of that accompanying this report, with the exception that there is no adipose tissue in their illustration.

CASE 2. Cystic degeneration of breast which had never secreted milk.—Mrs. S—, æt. 34, the mother of one child seventeen years of age, consulted me in February, 1880, for some disease of her right breast. She had suckled with her left breast but not with her right as the gland never secreted milk, although it, in all other ways, appeared to be natural.

Three months before I saw her she accidentally discovered a lump in the right breast which had steadily increased. It was not the seat of pain but only of uneasiness. When I saw her there were four or five nodules the size of nuts in the gland, and these from their globular outline I took to be cysts. The whole gland felt coarse to the hand and knotty.

I punctured one of the nodules for diagnostic purposes and let out some serum. The others I left. Six months later, when last seen, there was no change in the breast.

The cysts were doubtless due to cystic degeneration of the gland from involution changes.

CASE 3.—*Duct-cyst in breast with retracted nipple ; albuminous fluid drawn off ; cured.* (Reported by Mr. H. LADDY.)—Susannah B—, a healthy-looking, well-nourished woman, æt. 24, was admitted into Lydia Ward under Mr. Bryant's care on the 9th September, 1872, with a large hard substance in the centre of her left breast. The nipple had quite disappeared, from retraction, but the swelling seemed to point at the surface about an inch above where the nipple ought to be. There was no glandular enlargement in the axilla or above the clavicle.

The patient's family history had been good, and she herself had been healthy up to thirteen years old, when her back began to grow out both backwards and to the right side. She had no remembrance of any injury, and a year later she was employed in turning the mangle.

About four years ago her tonsils were cut, and two years later she felt slight pain in the upper part of her left breast, which became more severe when she raised her arm. One month before admission she noticed a lump about the size of a filbert, which was movable; a fortnight later there was a discharge from the nipple. She then sought advice from a medical man, who told her to bathe it with warm water; this benefited her at first, but the lump grew and the discharge from the nipple increased and became mixed with blood. She then came into the hospital.

On admission.—A very tense globular swelling the size of an orange was present in the centre of the breast. The nipple was flattened out and somewhat retracted; it discharged a yellow glairy fluid, which could be increased on pressing the tumour. The diagnosis of cystic disease of the breast was made. September 12th.—A small cannula was introduced into the cyst and about four ounces of a pale yellow fluid were drawn off. A drainage-tube was introduced into the cyst.

16th.—The breast discharged a little for a few days, but it ceased on the 19th, and on the 21st she left the hospital well. Two years later the patient reported herself as still well.

CASE 4.—*Cyst in breast, which disappeared after tapping.*—Elizabeth T—, æt. 43, a married, childless woman, came to me February 12th, 1866, with coarse, indurated breasts, and a tense,

globular tumour the size of a walnut in the left gland which seemed to be a cyst; there was no discharge from the nipple. For diagnostic purposes this cyst was punctured and clear serous albuminous fluid drawn off. By April 16th the swelling had gone. Six months later no return had taken place.

CASE 5.—*Duct-cyst in breast, which spontaneously suppurated, was opened and cured.*—Eliza H—, æt. 40, a married, childless woman, came under my care in April, 1870, with a tumour in her right breast which had been coming for five years, and was increasing slowly. She had had serous discharge from the nipple for two years. The axillary glands were not enlarged. At present there is a free discharge of a clear fluid from the nipple, which runs without, but can be increased with, pressure. At times the fluid is blood-stained. There is a tumour the size of an orange at the lower part of the gland. An incision was made into the cyst at its lower part and some ounces of pus evacuated. A good recovery followed.

It is probable that the spontaneous suppuration of a simple duct-cyst of the mamma is rare. I have not seen any other example, than the one recorded, in which it was clear that this took place.

In Prep. 4753 of the College of Surgeons there is, however, a cyst of this kind in which at one spot the inner surface of the cyst appears thinly covered with lymph, demonstrative of an inflammatory action. In this case, as in the one recorded in this paper, the nipple was retracted from traction on its ducts.

CASE 6. *Cystic tumour of breast; cured by an incision into its cavity and drainage.* (Reported by Mr. DUCKWORTH.)—Louisa N—, a healthy-looking married woman, æt. 45, was admitted into Lydia Ward, Guy's Hospital, on May 1st, 1879, under Mr. Bryant's care. Her paternal grandmother had cancer of the breast. About three months ago, she felt some pain in the region of the left breast, but noticed no lump for a month, when she felt one about the size of a walnut on the outer side of the gland. It was freely movable, and when she slept on her right side would slip towards the inner side. It was occasionally the seat of a gnawing or shooting pain. She has had one stillborn child, and never suckled.

On admission.—There is a hard, irregular, ovoid, lobulated swelling about the size of an egg, on the outer side of the left breast. It is very freely movable and the skin over it is not infiltrated. The tumour seems, however, to be slightly attached by one end towards the nipple, which is normal.

Operation.—May 6th, under chloroform, an exploratory incision was made about two inches in length on the outer side of the breast into the tumour, which was found to be a cyst. When opened about an ounce of clear fluid escaped. The cavity, which was smooth, was washed with iodine and water, after which a drainage-tube was put in and the wound dressed with cerebene lint.

8th.—No discharge, wound healthy, drainage-tube removed. Temp. 97·8°.

12th.—Tinct. Ferri Perch. ℥x, Tinct. Calumb. ℥xx, aq. ʒj, q. s. d. s. Temp. normal.

20th.—The wound has nearly healed.

24th.—Discharged cured. Some months later this patient was well.

CASE 7. *Cyst in breast treated by incision ; doubtful thickening remaining ; well.* (Reported by Mr. DUCKWORTH.)—Harriet S—, a single woman, æt. 35, was admitted into Lydia Ward on May 21st, 1879, under Mr. Bryant's care. Six years ago she had an abscess in her neck. About four months ago, the patient experienced when at work a dragging pain in her chest and shoulder, and found upon examination a small hard lump, about twice the size of a pea, in her right breast. It was freely movable and occasionally gave pain at the back of her shoulder. She has no recollection of having received an injury.

On admission.—To the left of the nipple of the right breast there is a hard, irregular, lobulated lump the size of a small orange, with a base occupying about the area of a half-crown. It is freely movable and does not infiltrate the nipple or breast. The axillary glands are slightly enlarged.

May 21st.—She is menstruating ; her menses have been irregular for some time. They generally last ten days.

27th.—Under chloroform, an incision was made over the tumour, radiating from the nipple and about two and a half

inches in length. Having cut into the tumour, about an ounce of brownish fluid escaped; the walls of the cyst were smooth. The parts were washed out with iodine and water and a drainage-tube introduced; the edges were then partially brought together with four sutures.

28th.—Temp. 98° , pulse 88.

29th.—Temp. 98.2° Two sutures taken out; wound looks healthy.

June 1st.—Temp. 98.9° , pulse 96. Wound closed well, narrow line of granulations on surface. A lump about size of a hazel nut felt below the incision.

24th.—Patient left the hospital cured.

CASE 8. *Cyst in right breast; treated by a free incision; no intracystic disease; patient well two years later.* (Reported by Mr. GOWAN.)—Mary S. R—, æt. 40, was admitted on October 15th, 1883, into Lydia Ward under Mr. Bryant's care. Patient is a tall, well-formed and well-nourished woman. She is a widow. Has never borne a child, and has never been injured in the breast.

Two months ago she first noticed a lump in her right breast about the size of a pigeon's egg, a little to the right of the nipple. It has grown somewhat rapidly since.

On admission.—The right breast does not appear much larger than the left. Both are well developed and firm. The right nipple is slightly tinged with brown, but not retracted, nor is the skin dimpled. A tumour, about the size of a large orange, occupies the upper and outer quadrant of the right breast; it is globular and smooth and indistinctly fluctuates. Neither the skin nor adjacent muscles are implicated apparently.

October 16th.—Under chloroform the tumour was punctured with a scalpel, when about one and a half ounces of blood-stained serum gushed out. The incision was enlarged and the cyst walls were found to be free from growth, smooth and thin. The wound was plugged with iodoform gauze, and dressed with gauze and flannel bandages; the arm was fastened to the side.

17th.—Passed a restless night; no vomiting. Dressings blood-stained, quite sweet, no clot.

18th.—No pain.

19th.—No appreciable discharge.

21st.—Patient feels unwell, but is menstruating profusely. Bowels not opened since operation. Had a slight rigor lasting fifteen to twenty minutes.

24th.—Bowels relieved and patient much better. Wound looks healthy and is free from pain.

26th.—Faint blush round wound, but temperature remained normal.

27th.—When she speaks she has shooting pain in breast. The blush has disappeared. Wound is quite sweet. Menstruation continues and bowels confined.

29th.—There is a lump just above the left nipple. It is tender, and makes patient anxious. Urine is slightly smoky. Wound dressed with terebene instead of carbolic oil, which had been used for a week. Still menstruating.

November 4th.—Ceased to menstruate, and is much better. Wound granulating up splendidly from the bottom. The left breast is no longer tender and is softer.

19th.—Left hospital; there is still an open granulating wound $11\frac{1}{8}$ inches long by $\frac{3}{4}$ inch. Patient's general health is good. Tumour in left breast *in statu quo*.

March, 1886.—This patient is quite well.

Temperature chart.

	Morning.	Evening.		Morning.	Evening.
Oct. 15. ...	—	98·4°	Oct. 26. ...	99·6°	99·4°
16. ...	—	99	27. ...	102·4°	102
17. ...	99·4°		28. ...	104	103
18. ...	99·8	98·4	29. ...	—	102·6
19. ...	99·4	99·6	30. ...	99·6	101·2
20. ...	98·6		31. ...	99·4	99·8
21. ...	99·2	98·8	Nov. 1. ...	99·2	
22. ...	—	103	2. ...	102·8	102·6
23. ...	101·4	102·6	3. ...	99·6	100·2
24. ...	100·8	101·2	4. ...	98·4	99
25. ...	99	100·2	5. ...	99	99

CASE 9. *Deeply placed cyst in sternal lobe of right breast, simulating adenoma in gland; exploratory incision; plug.* (Reported by Mr. C. LLOYD JONES.)—Margaret V—, a domestic servant, æt. 37, was admitted into Lydia Ward on Feb. 23rd, 1877, under Mr. Bryant's care. She stated that her father died at seventy years of age of some internal tumour, her mother at

thirty of hepatic disease. Her brother and sisters were all healthy. She was unmarried and always enjoyed good health. She fancied that she had become a little thinner during the past winter, and lately her menstrual intervals had become three weeks instead of a month. Three weeks before admission she happened to place her hand on her right breast, when she noticed a lump there. She felt no pain in it and it had not increased in size since it was first noticed.

When admitted, the hand pressed flat against the breast at once detected, at the upper part of the right breast, a tumour which was nearly circular in shape, about two and a half inches in diameter, and flattened. It felt hard and its surface was distinctly lobulated. The tumour was movable with the breast, the skin was nowhere puckered nor adherent, and there was no pain on manipulation. The nipple was normal. No enlarged glands in axilla or elsewhere.

The patient could assign no cause for the appearance of the tumour, and she stated that she was, as she appeared to be, in very good health.

March 9th.—Under an anæsthetic, an incision was made into the tumour, when blood-stained serum escaped; the lining membrane of the cyst which occupied the posterior part of the lobe was smooth; the cyst was plugged.

15th.—Wound nearly well. The patient had not had one bad symptom or any rise of temperature.

Remarks.—In this case the true diagnosis was not at first made, nor was the true nature of the case suspected; the tumour had none of the appearances of a cystic growth, since it was quite inelastic, and its surface was nodular and hard.

The cause of this error in diagnosis is to be explained by the position of the cyst, which was covered in by gland of quite three quarters of an inch in thickness, the gland giving the nodular outline and yielding the firm feel.

At one time the question of infiltrating carcinoma was considered, on account of the growth so closely involving the gland and appearing as an infiltration, but this was dismissed in favour of the adenoid view, the outline of the tumour appearing more of the latter disease.

Had this case been punctured for diagnostic purposes its true nature would have been discovered.

CASE 10. *Cyst of mamma mistaken for tumour and excised ; cure.* (Reported by Mr. C. E. PERRY.)—Anne F—, a married woman, without children, æt. 47, was admitted into Lydia Ward, under Mr. Bryant's care, on Jan. 18th, 1875, with a hard round swelling, about the size of a small tennis ball, in the upper and outer part of her left breast; it was movable with the breast and without pain except on pressure. It was regarded as a carcinoma. It appeared that an aunt on her mother's side had died of cancer in the breast. She herself had had good health until about five months before admission, when she felt a swelling about the size of a small egg in her left breast; it remained about the same, without pain, for three months, when, pain coming on, she sought advice and had some embrocation, which she left off after a few days, as it brought out a rash. She then fomented it and nothing else was done up to the date of her admission.

Jan. 26th.—Chloroform having been given the breast and tumour were removed by two elliptical incisions. On cutting into the tumour it was found to be a simple cyst full of fluid.

The patient did well after the operation and left the hospital convalescent.

The preparation is in the Guy's museum, No. 2290⁸⁰.

CASE 11. *Sero-cystic disease of right breast ; removal of lobe ; inflammation of the remainder, and recovery.*—Mrs. S—, a childless, married woman, æt. 50, was brought to me by Dr. Wallace, of Hackney, March 15th, 1875, with a tumour in the axillary lobe of her right breast which had been steadily increasing for three months. The tumour was hard and lobulated, and I supposed the growth to be simple and advised its excision.

March 21st.—On excising the tumour I found it to be made up of cysts, and in making the section of the gland the whole breast was found to be full of small cysts (involution cysts), many of which I punctured. I could not remove the whole gland, as I had undertaken to remove the tumour alone.

During convalescence the remainder of the gland inflamed and indurated, putting on the clinical features of acute cancer. The induration, however, subsequently entirely subsided, and the patient recovered.

In 1881 she was quite well.

The tumour on removal was made up of cysts of various sizes, the largest being about the size of a walnut. The cysts contained fluid of different kinds. In some it was clear, in others blood-stained, whilst in a few it was mucoid and greenish. There were no intracystic growths. Some of the ducts were open and through these bristles could be passed.

The gland was clearly undergoing cystic degenerative changes and in the lobe removed these changes had gone on rapidly.

CASE 12. *Sero-cystic disease of breast following injury; excision of gland; patient well two years later.*—Miss D—, æt. 34, patient of Dr. S. Tayleur Gwynne, of Whitchurch, Salop.

In June, 1864, she had a blow upon her left breast, which was followed by pain for two months and then the appearance of a swelling.

In January, 1865, when I saw her, the swelling clearly occupied the sternal half of the gland and was tense, giving the idea of a cyst. General health good. By December of the same year the tumour had increased and had become lobulated; it, moreover, was more painful. Nipple and lymphatic glands normal.

December 29th.—Breast removed and found to be a pure cystic disease of the gland. Cysts contained brown thin fluid, some clear serum. No intracystic growths.

Rapid recovery ensued and two years later the patient was well.

CASE 13. *Sero-cystic disease of breast; excision of breast; patient well five years subsequently.*—Mrs. R—, æt. 40, the mother of seven children, was brought to me by Dr. Wilton, of Sutton. Her left breast has no nipple; it had been destroyed by old ulceration. The right breast is the seat of cystic disease, which involved the whole gland, and had been going on for months. The gland was very large, with an irregular outline, and clearly contained cysts of all sizes. The nipple and skin over the breast were normal.

January 29th, 1881.—Breast removed, and the operation was followed by a good recovery. The gland was full of cysts of all sizes which contained a great variety of fluids. No intracystic growths could be found.

January, 1882.—Pregnant. Natural delivery. Left breast strapped. No trouble.

1886.—Well.

CASE 14. *Sero-cystic disease of breast ; excision of breast ; patient well eight years later.*—Mrs. S—, æt. 39, the mother of three children, all of which she had nursed without trouble, the youngest being fifteen years of age, was brought to me by Mr. Joseph Burton, of Blackheath, in 1876, with an irregular nodular tumour in her left breast, which had been coming on several months. It was apparently cystic and involved the whole gland. The skin over the gland was normal. Her mother had had cancer of her breast and the sister some internal tumour.

February 16th, 1876.—Breast removed. On section a large cyst without intracystic growth containing fluid as dark as ink was found, with many smaller cysts containing fluid of different characters. In fact, the whole breast was full of cysts of different sizes. A good recovery ensued, and in 1883, eight years later, the patient was well.

CASE 15. *Cystic (duct) adenoma of breast ; excision of lobe.*—Mrs. D—, æt. 45, the mother of four children, the youngest of whom was eight, and who had only nursed her first child, consulted me in April, 1876, for a tumour in her right breast which had been discovered six weeks and had steadily increased. I took it to be a cyst. The swelling was central and very cystic to the feel. The nipple projected more on the right than the left side and discharged blood-stained serum. The skin over the gland was healthy and the lymph-glands were natural. I advised puncture or incision and excision if the cyst was found to contain growth. The late Mr. Jardine Murray, of Brighton, did this in May, 1876, and found a pedunculated intracystic growth which on examination proved to be an adenoma. He then excised the affected lobe, and a good result followed.

Five years later this lady was well.

This case is similar to Cases 17, 18, and 31.

CASE 16. *Case of cystic adeno-fibroma of the breast, in a woman, æt. 71 ; excision of gland ; cure.*—Catherine K—, æt. 71, a healthy-looking woman, the mother of three children, was admitted into Guy's Hospital, under the care of Mr. Bryant,

on August 7th, 1865. She had always enjoyed good health, and had been able to suckle her children. About last Christmas, some time before admission, she accidentally discovered a lump the size of an egg in the outer side of her right breast; it was painless, and grew very slowly for three months, when it suddenly began to increase rapidly in size, and to cause pain. She applied to Mr. Bryant for relief, and remained under his care till she was admitted. On her admission the right breast presented a large tumour, the size of a cocoa-nut, closely connected with, if not in, the breast. It was irregular in its outline, and evidently in parts made up of cysts, for, in its projecting portions, distinct fluctuation was clearly felt. There was, however, much solid matter. The tumour was quite movable, and the skin over it was only stretched; the axillary glands were also healthy; the nipple was natural.

Nothing but excision promising to be of any use, the operation was performed on August 30th, and a rapid recovery took place; the old woman leaving the hospital in one month perfectly well.

On examining the tumour it was found to be made up of a firm solid material, which contained several large cysts. These cysts contained a blood-stained glairy fluid, and in parts the solid growth seemed to threaten to degenerate and break up.

The tumour measured seven inches by six; it was very firm in its consistence, and to the eye appeared of a sarcomatous nature; it was tough, and with difficulty broken down; in parts, however, it had more the aspect of the looser kind of adenoid tumours.

By the microscope the opinion formed by the naked-eye examination was confirmed, for the structure generally was an admirable specimen of the more fibrous kind of adenoid tumour; tubes were here and there visible, and, as a drawing by Dr. Moxon indicates, well-developed cell-structures (*vide* 'Path. Trans.,' vol. xvii, p. 283).

As an example of an adeno-fibroma in an old woman the preparation must be regarded with great interest.

CASE 17. *Cystic (duct) adenoma of breast.*—Mrs. T—, æt. 54, the mother of several children, all of whom she had nursed without trouble, consulted me in October, 1880, for a tumour

of her breast which she had noticed for about a year. The appearance of the tumour had been preceded for months by the discharge of a serous fluid from the nipple. The tumour was about the size of a tennis ball, hard and globular; pressure upon it caused blood-stained serum to flow from the nipple. The skin over the swelling was natural, and the nipple was not changed. The diagnosis of a duct-cyst was made and an incision advised into the tumour with the view of an excision should an intracystic growth be found.

This was performed on October 23rd, 1880, and the breast removed, as a pedunculated intracystic growth was found (Plate III, fig. 3) in the cyst. A good recovery ensued, and the patient was well four years later.

The growth was examined by Mr. Symonds, who reports:

The growth was one and a quarter inches in diameter, and was attached by a small pedicle to the smooth wall of the cyst in which it was enveloped. It had a deep purple-red colour, was soft, and separated easily from its attachment. Round the cyst and in its wall were many dilated ducts, some of large size, but no direct communication could be traced. The cyst appeared to be produced by dilatation of a duct. Nowhere in the breast was there any other growth.

The tumour had a lobulated appearance, as exhibited in the drawing (Plate II, fig. 3), and microscopically showed all the characters of a pure adenoma (fig. 4). It is composed of large spaces of various shapes, lined by closely-set cells. These have large nuclei and one or more nucleoli. The supporting framework is a very delicate fibrous tissue containing cells of various shapes besides blood-vessels. From the walls of many acini grow conical projections which often blend with the opposite wall.

The tumour therefore appears to be a pure adenoma growing from the wall of a duct. The small amount of fibrous tissue, and the normal characters of the breast tissue immediately round the cyst, negative the view that it is a fibroma, budding into a dilated duct. This growth is identical with that called now a "duct papilloma."

CASE 18. *Cystic-duct tumour with pedunculated adenocoele of breast; excision; relieved.* (Reported by Mr. W. T. CREW.)

—Susannah W—, a single woman, æt. 43, was admitted under Mr. Bryant's care into Lydia Ward on February 2nd, 1876, with a globular tumour involving the whole of her right mamma and extending into the axilla, on the inner side of which there were little hard nodules like peas. The tumour within the breast-gland was freely movable under the skin and over the pectoral muscles; the veins were distended over the tumour. Fluctuation was very distinct over the greater part of the swelling; there was no discharge from the nipple, and the lymphatic glands were unaffected.

In 1872 she first noticed an exudation from her nipple like glycerine; soon after a lump the size of a walnut appeared in her breast without pain, and the swelling increased. The breast would sometimes feel tense, but become relieved as soon as the discharge took place. For six weeks there had been no discharge.

February 3rd.—The patient having a little cough the operation was deferred until the 8th, when chloroform having been administered an elliptical incision was made, and the whole tumour, with nipple and a portion of the skin, was dissected out and removed.

The tumour was mainly composed of a cyst which contained about half a pint of mucoid fluid, and was lined by a thin delicate white membrane; attached to its walls were several lobulated pedunculated tumours (Plate II, fig. 2). The growth examined showed a well-marked papillomatous structure. The processes are covered by long columnar cells, and often divide. Circular or elongated apertures lined by the same cells are also numerous. There are also small cysts with definite fibrous walls and colloid contents.

The growth closely resembles that in Mrs. T—'s case, No. 17, and suggests that the large cyst in this instance is also derived from a duct. The small cysts in this growth have been formed, I suppose, by the fusion of the processes in the manner described by Wilson Fox. Several smaller adeno-fibromatous tumours were also found on making sections of the gland in other parts of the breast. The arteries were twisted and sutures put in, pressure was exerted by pads of lint, and the whole wound drawn together by strips of strapping. She was not sick after the operation, and her temperature was normal.

11th.—The wound looked very well, and there was very little discharge.

21st.—The wound has healed by first intention.

Three years later the patient was well.

CASE 19. *Cystic-duct adenoma; excision of tumour; cure.*

—Harriet W—, æt. 47, the mother of thirteen children, youngest six years, all of whom she had suckled, was brought to me on January 14th, 1867, with a globular tumour, apparently cystic, in the upper part of her left breast, which she had observed six months. At first she had a clear discharge from the nipple, but she had not had any lately. The skin over the tumour is apparently bound to the growth. Axillary glands sound.

September 15th.—Serous discharge from nipple very free, increased by pressure. Tumour large.

March, 1868.—Tumour removed and found to be composed of a cyst with intracystic pedunculated growth which was pronounced by Dr. Moxon, after microscopical examination, to be adenoid.

CASE 20. *Cystic-duct sarcoma of the breast which never secreted milk.*—Mrs. G—, æt. 45, the mother of one child, æt. 117, which she suckled with her right breast, but not with her left because she had no milk in it, and the nipple was likewise retracted, consulted me in February, 1881. For six years she had had a discharge of a clear fluid from the left retracted nipple, and more at the catamenial periods; the fluid at times was like “treacle water.” Three months ago this flow stopped and a lump appeared.

A tumour the size of a walnut exists in the centre of the breast beneath the nipple. There is no discharge from the nipple. I advised incision and excision if necessary. Dr. Godfrey, of Balham, subsequently tapped the cyst and discovered a growth, the excision of which was advised, but not acceded to.

CASE 21. *Cystic sarcoma of the breast fourteen years; removed; well seven years later.*—Mrs. B—, æt. 42, of Bottesford, Nottingham, the mother of four children, the youngest being four years old, all of which she had suckled, consulted

me in 1877 for a tumour in her left breast of fourteen years' duration. At the birth of the last child, four years ago, it was no larger than an egg. For the last six months it has grown rapidly and is now as large as a fist. It is clearly cystic from its nodular shape and fluctuating feel. There is no discharge from the nipple. No lymphatic glands enlarged. Excision was advised and performed, and a good recovery followed. In 1884, seven years after the operation, the patient was well. Her maternal grandmother had died from cancer of the tongue, and her paternal grandmother from cancer of the breast.

CASE 22. Cystic sarcoma of the breast; retracted nipple; excision; well eight years later.—Mrs. S—, æt. 50, the mother of nine children, one alone of which she suckled without difficulty. Eight have died of phthisis at ages varying from fifteen to twenty-seven.

She has had a tumour in her breast for two years, and it has been steadily increasing. At present (March, 1876) it is the size of a fist, smooth, slightly lobulated, globular, and elastic; it appears to be cystic. The nipple does not discharge, but is retracted. Axillary glands free.

April, 1876.—It was excised by Dr. Sams, of Blackheath, who sent me the specimen.

April 11th, 1876.—Dr. Goodhart reported: "The tumour is spindle-cell sarcoma or recurrent fibroid, as I expected from its lobulated appearance and manner of growth. They are not at all uncommon in the breast and are often called adenoid growths from their very similar naked-eye appearance. It will probably return in cicatrix, though glands are less likely to be involved in axilla."

In 1884 this lady was still well.

CASE 23. Cystic sarcoma of breast; rupture of cyst; hæmorrhage; excision; recovery.—Mrs. S—, æt. 71, consulted me in January, 1873, for a tumour of the breast of twelve years' growth. It was then the size of a child's head. One cyst had ruptured, and an intracystic growth sprouted from its centre which bled freely. On this account an operation was advised, and performed on Feb. 26th, 1873. A good recovery ensued. The disease was on examination found to be one of cystic dis-

case with intracystic sarcomatous spindle-celled growths. This lady died, more than three years after the operation, in September, 1876, from acute bronchitis.

CASE 24. *Cystic sarcoma of the breast ; rupture of cyst ; operation refused.*—Clara W—, æt. 43, the mother of three children, the youngest being fourteen years old, consulted me on March 7th, 1867, for a tumour the size of an orange in her left breast, which had been growing thirteen months. It was lobular, semi-elastic, and nodular. The skin, nipple, and axillary glands were sound.

April 7th.—Tumour much larger, its bossy surface is lost, and the growth seems to be one large cyst. Cyst tapped and about one ounce of blood-stained fluid drawn off.

June 2nd.—Tumour size of cocoa-nut.

July 8th.—Tumour burst and discharged fluid full of blood. Operation refused. Intracystic growths visible, later on some projected through the rupture in the cyst wall.

July 16th, 1868.—Patient sinking from asthenia and bleeding from the growth.

CASE 25. *Cystic sarcoma of breast ; rupture of cyst ; operation rejected.*—Mrs. R—, æt. 63, married at age of twenty-one and had five children, the youngest aged thirty. Nipple in left breast always retracted. Thirty years ago, independently of nursing, she had a tumour the size of a fist in her left breast, which disappeared after one year. She remained well for twenty-eight years, up to one year ago, when the swelling reappeared in the same breast and this has gradually grown.

At present (July 9th, 1873) a tumour the size of an egg exists in the upper part of the breast which seems to be a cyst ; this is adherent to the skin. Excision of the tumour was advised but not accepted.

January 19th, 1874.—The cyst, which has much increased in size, has ruptured and discharged its contents, a sarcomatous growth protruding from the skin opening. No operation was functioned.

CASE 26. *Cystic sarcoma of breast ; suppuration of a cyst followed by rupture of cyst ; no operation.*—Mrs. C—, æt. 43, of

Hull, the mother of five children, her youngest child now fourteen years of age. After giving up nursing had discharge from her nipple of a clear greenish or blood-stained fluid. Six months ago this discharge ceased, and the breast enlarged, inflamed, and suppurated. It was opened at that time by Mr. W. H. Rudd (April, 1883) and the abscess healed, leaving a lump. This increased in spite of treatment, and is now the size of a large egg. It appears to be (February, 1884) cystic. Incision into the cyst was advised, and excision of the lobe advised if growth was found. Nothing was, however, done, but the cyst burst and discharged bloody fluid, and this has been going on up to the present (October 12th, 1884).

CASE 27. *Cystic sarcoma*.—Mrs. S—, æt. 70, has had three children, which she never suckled. In 1875 she consulted me for a tumour in her right breast which she had had four years; when seen by me it was the size of a cocoa-nut, clearly cystic, and nodular. No lymphatic glands were enlarged. Skin normal. Operation not advised on account of age.

CASE 28. *Cystic fibroma of right breast with cystic degeneration of the gland; excision of tumour; cured*. (Reported by Mr. METZGAR.)—Rebecca B—, æt. 40, was admitted into Lydia Ward on June 21st, 1884, under Mr. Bryant's care.

Patient's father and two brothers died of phthisis, and she frequently suffers from bronchitis and neuralgia. She is married and has one son alive and healthy.

Six weeks ago she noticed an uncomfortable swelling in her right breast, which appeared as a prominent tumour in the upper half of the gland. This tumour has not increased much since then, but it has seemingly got softer.

On admission.—The tumour is hard and nodulated, firmly embedded in the gland but freely movable with it upon the pectoral muscles. The skin over it is normal. The axillary glands are not enlarged. Nipple natural. Urine normal.

June 24th.—Under chloroform an oblique exploratory incision was made into the tumour. The tumour when incised appeared granular and fibrous, a fibroma apparently growing from or into a cyst; the breast itself had undergone cystic degeneration. The tumour was then freely separated from the

surrounding breast tissue and removed. In so doing black cysts were seen spread over it. The vessels having been twisted and capillary hæmorrhage stopped by hot iodine sponges, three silk sutures were put in and one and a half inches of drainage-tube into the upper and left end of the incision, the lower or right half being well padded with lint and a sponge. The arm was strapped to the side.

June 25th.—Drainage-tube removed.

30th.—Stitches removed as well as drainage-tube. Lips of wound drawn together with waterproof strapping.

July 11th.—There has been good primary union. There is very little discharge. A plug of terebene lint put into the lower and right end of wound.

26th.—Went out, to come up from time to time to be seen. This patient was subsequently quite well.

The tumour when removed proved to be a fibroma growing from the walls of a cyst. The gland itself was full of small cysts the result of degeneration.

Temperature chart.

		Morning.		Evening.			Morning.		Evening.		
June	23	...	98·6°	...	99·2°	July	4	...	98·6°	...	99·4°
	24	...	98·4	...	98·8		5	...	98·6	...	97·2
	25	...	100·6	...	101·4		6	...	98·4	...	98·8
	26	...	98·2	...	99		7	...	98·6	...	98·4
	27	...	99·6	...	101		8	...	98·8	...	98·4
	28	...	98·6	...	100·4		9	...	98	...	98·6
	29	...	100·6				10	...	97·8	...	98
	30	...	98	...	98		11	...	99	...	98·2
July	1	...	98	...	99·8		12	...	98·6	...	97·8
	2	...	98·4	...	98·8		13	...	98		
	3	...	98·2	...	98·4				Normal.		

CASE 29. *Recurrent mammary cystic sarcoma ; excision ; well.* (Reported by Mr. H. H. WRIGHT.)—Eliza M—, æt. 36, was admitted into Lydia Ward on July 14th, 1880, under Mr. Bryant's care. Patient is a married woman and the mother of eight children. Three years ago she was operated upon for tumour of the left breast; the tumour was removed but the breast was left. She has since been able to suckle a child at the same breast. A year ago she noticed a small lump above the nipple which has steadily increased. On admission there

was a large lobulated tumour involving the whole of the left breast. Divided into two chief parts, one of these occupies the central and upper part of the gland; the other, which is smaller, is placed on the axillary side. The whole tumour is above the level of the old cicatrix. It is freely movable, partly hard and partly elastic to the touch. One point above and to the inner side of the nipple is inflamed and painful.

July 20th.—Under an anæsthetic the whole mass was turned out with the breast-gland.

The patient suffered a little from conjunctivitis after the operation, but otherwise did well, and on August 16th went out, the breast having healed.

Description of tumour.—The tumour was everywhere encapsuled. It was composed of many lobules separated from one another by fibrous septa and each enclosed in a capsule. Some of them grew into thin-walled cysts containing little or no fluid, their walls being in contact. The growths in these cysts were in some cases lobulated finely on the surface. In a few, they resembled in colour and smoothness a mucous nasal polypus, but were in consistence a little firmer. The majority of the lobules showed on section a finely lobulated appearance, the outlines of the little lobules being crenulated, and some having a distinct cavity in the centre. No communication could be traced between the various cysts nor could any be traced directly to the nipple. Some parts of the growth were hard, firm, and fibrous. There were no blood-cysts nor any of the translucent-looking material so common in a sarcoma. In some of the nodules (felt elastic during life) there were many elongated slit-like spaces with smooth walls, the surrounding material being acinous.

Histologically the tumour was composed of spindle cells and gland elements (adeno-sarcoma).

CASE 30. *Cystic (duct) sarcoma of right breast; early symptom, hæmorrhage from nipple; amputation.* (Reported by Mr. PHILLIPS.)—Eliza A—, æt. 45, a governess, was admitted into Lydia Ward on Jan. 8th, 1884, under Mr. Bryant's care. Patient was delicate, but never had any particular disease. Breasts have been always tender, but no history of injury. Menstrual periods regular.

In January, 1883, one year before admission, patient first noticed a pale brownish discharge from the right nipple. It lasted three months and was increased during her menstrual periods. In March she noticed a lump the size of a small marble on the upper and inner part of her right breast. This increased visibly during her menstrual periods. About two months ago it began to grow and since then her menses have been irregular.

On admission.—Patient is a florid-looking woman and apparently healthy. The upper and inner aspect of the right breast occupied by a “firm but not hard” lump measuring $2\frac{1}{4} \times 1\frac{1}{2}$ inches, and with the longest axis vertical. The lump is painful. There is no fluctuation. The skin is not very movable upon the growth. A hard cord can be felt running down from the growth to the nipple. During pressure upon the tumour a few drops of serous fluid mixed with blood came from the nipple. Under the microscope this fluid was found to consist of blood-corpuscles forming rouleaux. A small gland the size of a nut exists in the axilla.

The breast was removed and found after removal to have been the subject of cystic degeneration of the gland. Into some of the cysts sarcomatous growth of the spindle-celled variety existed (vide drawing, Plate II, fig. 1).

19th.—There was primary union all down the wound except its lower part. The uppermost stitches were taken out.

26th.—Drainage-tube taken out.

February 1st.—There is perfect union of wound.

9th.—Discharged well.

Temperature chart.

	Morning.	Evening.		Morning.	Evening.
Jan. 15	... —	... 99·6°	Jan. 27	... 99°	... 98·4°
16	... 99·2°	... 101·2	28	... 98·6	... 99
17	... 101	... 101	29	... 98·8	... 98·6
18	... 99·8	... 100·6	30	... 98·6	... 99·6
19	... 99·6	... 100	31	... 99	
20	... 100·2	... 99·6	Feb. 1	... 103	... 99·6
21	... 99·4	... 100	2	... 98·6	... 99·2
22	... 101	... 99	3		
23	... 98·8	... 98·8	4	... 98·6	... 99·2
24	... 99	... 98·6	5	... 98·6	... 98·8
25	... 98·4	... 98·8	6	... 98·6	... 98
26	... 98·6	... 100			

CASE 31. *Cystic adeno-sarcoma of breast; excision.*—Miss C—, æt. 46, consulted me on July 10th, 1885, for an affection of her left breast which had been coming on for about six months and accompanied with some pain. The whole gland seemed to be indurated and enlarged, and to the hand felt coarse and nodulated; below the nipple a hard mass was felt. The nipple was natural and discharged a blood-stained fluid, more particularly after manipulation. The skin over the breast was natural, and the lymphatic glands were not enlarged.

On July 11th the breast was excised and a good recovery ensued.

To the eye the breast was clearly undergoing cystic degeneration, the whole gland being full of small cysts. In one lobe these cysts had much increased and one of them contained an intracystic growth. The cysts had evidently a connection with the ducts, since during life there was a nipple discharge, and after the removal of the gland fluid could be squeezed out of the nipple.

Mr. Symonds' report on the case is appended.

Report of case by Mr. Symonds.—The breast was found to contain a large cyst in the tissue just beneath the nipple, measuring one inch across. Projecting into one end of the cyst was a rounded solid growth, with an uneven papillomatous-looking surface. This extends beyond the limits of the fluid-containing portion of the cyst as a solid cylinder, round which the cyst wall is closely fitted, so that in a transverse section the appearance is much that of a large vein filled with a growth. The section has a whitish-grey colour. No other cyst of any magnitude was seen, but there were many small ones. The rest of the breast looked fairly healthy. The tissue was hard, but no definite tumour was visible.

Microscopic examination.—The solid growth is composed of irregular glandular acini, lined by short columnar cells, with a deeper layer of a less regular form (woodcut, Fig. 1). In many places the cells are heaped up and then are smaller. The stroma is composed of fine fibre tissue, and contains here and there a cavernous arrangement of vascular tissue. It is very delicate in parts and forms but a small portion of the whole; in other places, however, especially where the growth is con-

ected with the wall and outlying breast tissue, there is much solid material. This contains much fibre tissue, spindle cells, and a few myeloid, and closely resembles a sarcoma. This solid growth does not form a separate tumour in the breast, for at no great distance from the cyst wall the ordinary mammary tissue is reached. Such a structure as that described might be looked upon as the starting-point of the growth, but it forms so small a part of the whole and reaches so short a distance into the breast tissue proper, that the view seems not so reasonable as the one stated below. The cyst wall is lined with the same short columnar cells, and the relation of the two is seen in the woodcut.

FIG. 1.



There are other cysts visible under the microscope varying from a size slightly larger than a normal acinus to $\frac{1}{8}$ th inch across. The smallest, as seen in Plate I, fig. 3 are evidently dilated acini and ducts. These are lined with rounded or columnar cells according to their source of origin. The larger ones, of which two or three were found, contain, besides the granules, large round or oval cells with nuclei, and these cysts are lined by peculiar large cells shown in Plate I, fig. 2.

They exhibit an intracellular and intranuclear network, have a more or less columnar shape altered by pressure, and large prominent nuclei. They are set directly upon a wall of close fibre tissue containing elongated nuclei. In places these cells are heaped up and proliferating. They are undoubtedly the progenitors of the large granular cells found in the cysts. Sometimes cells of this character are found filling spaces in the glandular formations, and showing in great contrast to the dark, short columnar cells, for they are themselves pale, except for the nucleus and granular appearance. In these smaller cysts there are also found glandular growths, connected with the wall. Where attached to the wall there is no solid growth in the neighbouring breast tissue.

So far as the description has been carried it will appear that there is no solid growth except that found in the cysts.

Examining other parts of the breast it is found that everywhere some change is going on,—that there is a widespread activity manifesting itself throughout the entire organ, culminating in the formation of cysts and glandular growths. Again, it must be stated that nowhere is any highly nucleated tissue to be found, except on the margin of the large cyst above referred to. The fibre tissue is dense and contains few nuclei, and everywhere fat is found, so that in all the illustrations adipose tissue, where not sketched, will be considered to be present close to the acini.

The presence of the fat seems a good evidence of the fact that we are dealing with a diffused change in the breast, and not with a widely disseminated tumour, a point insisted upon by Cornil and Ranvier.

The first departure from the normal structure is seen in the acini. The cells are increased in number and obscure the lumen, and the wall shows as a thickened fibrous investment, with very few nuclei.

Next several acini fuse together by obliteration of the intervening septa as in Plate I, fig. 4. Fig. 4 is a good example, and illustrates a process seen in all parts of the breast in varying degrees. The cells are smaller and more irregular than the normal ones. In some places, but this is exceptional, fibre tissue is produced at the same time, and we have the appearances presented in Pl. I, fig. 3, of an alveolated stroma of

fibrous tissue, the spaces of which are filled with epithelial cells. In the centre of some spaces is seen a lumen, while in others the cells have accumulated to such an extent as to obliterate all trace of it. In the drawing only some of the cell groups have been filled in.

Such are the various morbid appearances seen in this breast. The sequence of events it is not so easy to arrange, for though there are some small adenomatous growths in cysts, I cannot follow the development of such out of the earlier changes detailed above.

It remains to me a doubtful point whether the intracystic adenomatous growths arise by proliferation of the epithelium lining a dilated acinus or duct, or whether they arise out of such a process as is seen going on in fig. 3. The large epithelial cells lining some of the cysts, and shown in fig. 2, are probably altered duct epithelium.

It is important to compare this with the sketches of the breast from Mrs. T— (Case 1), where a pure cystic change is seen, Pl. I, fig. 1, and with that of Mrs. T— (Case 17), where a pure adenomatous growth hangs by a pedicle to the wall of a cyst, Pl. II, figs. 3 and 4. Whatever view be taken of the sequence of events in this breast the following conclusions seem justified:

1. That the change is a general one.
2. That there is no new solid formation outside of cysts.
3. That the departure from the normal begins in the epithelium of the ducts and acini, and proceeds either towards cyst formation or fusion of many acini, to one or to both of which changes new formation of gland tissue succeeds.

It may, I think, also be surmised, when we consider the appearances presented by the large cyst in Case 1, and the connection between the intracystic growth and the cyst wall in this case and shown in woodcut, Fig. 1, p. 37, that the glandular formation arises by outgrowths from the cyst wall, and is a pure intracystic growth, and not a protrusion inwards of a tissue formed outside the acini and ducts. As in Cases 15 and 17 the growth may be viewed as an adeno-sarcomatous papilloma.

CASE 32. *Cystic sarcoma of right breast ; ulceration of skin over it ; excision ; recovery.* (Reported by Mr. H. DISMORR.)

—Dora G—, an anæmic-looking woman, æt. 53, was admitted into Lydia Ward on December 16th, 1873, under the care of Mr. Bryant. She had noticed for many years in her right breast a lump, at first not larger than a nut. Her sister while in bed had put her elbow on the patient's breast whilst raising herself up. This gave her a great deal of pain, and the small lump then appeared; it gradually increased in size, but did not trouble her much till about six weeks before admission, when she caught cold and it enlarged rapidly; the skin broke in two places over two prominent lumps, the bridge between them gave way and united the separated sores; these increased in size and discharged very much. On admission, the breast was the seat of a tumour the size of a cocoa-nut, which was somewhat nodulated on the surface; the skin on the inner side of the nipple was red from capillary congestion; on the outside there was an ulcerated surface five inches by four, which was in great part covered by a blackish slough. The edge of the skin, though adherent to the tumour, was not infiltrated by new growth. The glands in the axilla were enlarged, but there was no enlargement of the abdominal viscera, and the other breast was healthy.

On December 23rd she was put under the influence of chloroform and the tumour was removed by two semi-elliptical incisions, with the enlarged axillary glands. The two edges of the wound were brought together and supported by strapping. There were no adhesions of the tumour to the deeper parts. A section of the tumour showed a large single cyst with definite walls, its cavity being filled with sessile growths of a lobulated form, tough consistence, and gelatinous look. The microscope showed it to consist of a loosely fibrillated connective-tissue spindle-celled sarcoma and a larger number of round fatty nuclei scattered through it.

After the operation a morphia injection was given, which greatly relieved the patient, but she was very sick the day after, and perspired freely for some two or three days.

29th.—The wound is looking very healthy and covered with granulations. There has been a little diarrhœa, accompanied by pain in abdomen. Temp. 98·6°, pulse 78.

January 17th, 1874.—The patient has gone on improving; there has been a good deal of perspiration, at night particularly,

after which she complained of weakness, but her appetite has been good. Six pieces of skin were transplanted to the wound, four of which seemed to take. She used to get up for an hour or two in the day. The wound decreased in size, and on the 27th was the shape of a triangle, each side being about two and a half inches long.

29th.—Eight pieces of skin were transplanted, six of which were thought to have taken five days later from this time. She went on capitally and left the hospital on February 9th, the wound still being the same shape, but having lessened in size half an inch in ten days.

This patient was known to have been well three years later.

CASE 33. *Cystic carcinoma (?) of breast; excision.*—Miss S—, about forty-five years of age, consulted me on December 19th, 1884, on the advice of Mr. Bisshopp, of Tunbridge Wells, for a tumour involving her right breast of more than two years' growth. She was first seen by Mr. Bisshopp in November, 1882, when the tumour had been discovered some months. It was then hard but painless; it grew gradually. When I saw her, the whole breast seemed to be involved in the disease and was hard and nodular. The nipple and skin over the breast were natural. I regarded the case as one of cancer and advised its speedy removal. Sir James Paget saw the case and gave a like opinion. On January 9th, 1885, the operation was performed, and the wound healed at once by quick union.

The lady is now (eighteen months after the operation) well.

Report of tumour by Mr. Symonds.—The tumour was situated beneath the nipple in the substance of the breast and measured about $1\frac{1}{2}$ by 2 inches. The section when fresh showed a pinkish colour with many yellow spots resembling altered secretion, plugging ducts. There were, besides, many larger spaces with smooth walls, filled with a yellowish-grey or darker thick fluid. The tumour was not limited by any capsule, but blended directly with the breast, and in some places with the adipose tissue. When a thin slice was cut and the yellow contents of the spaces removed, the whole closely resembled cavernous tissue, so numerous were the spaces and so scanty the stroma. Examined microscopically in water, the yellow material was found to be composed of cells of all shapes and in

all stages of degeneration, the prevailing shape being an irregular columnar. Numerous fatty granules, and plates and rounded or irregular masses of carbonate of lime also were present.

The microscopical appearances are shown in the large drawing made under a low magnifying power (Fig. 2). The spaces are of various sizes and shapes, are all of a tubular

FIG. 2.



character, and most of them have a distinct lumen, occupied when fresh by the yellow material above described, and which has nearly all fallen out in the preparation of the section. The epithelium lining these spaces, the characters of which, under a high power, are shown in Plate I, fig. 5, is arranged mostly in a double or triple layer, having a distinct dark line where uniting they limit the lumen, an appearance resembling the striated border of Brücke. In other spaces the epithelium is

more abundant, and forms irregular elevations projecting towards the lumen, which is in some instances entirely obliterated. Under a high power this last arrangement closely resembles an alveolus of an ordinary carcinoma of the breast. The stroma is fibrous, with very few nuclei or vessels, differing in these respects markedly from the stroma of new growths generally. The epithelial cells (Plate I, fig. 5) are large, angular, closely fit into one another, and have prominent round or oval nuclei. As they increase in number many become granular and some vacuolated.

The growth was not confined to the nipple, but was placed somewhat below this point. Moreover, it invaded the surrounding adipose tissue. On these grounds, and on account of the large size of the tumour, the large number of the spaces, and the absence of any large cysts, the formation must, I think, be considered as no mere duct dilatation, but a new growth, the prevailing character of which is its tubular form. This character is determined probably by the seat of origin, for when contrasted with another case, that of Mrs. T— (Case 1), the absence in all the sections of ordinary breast tissue and fat, confirms the view that this is a new formation.

CASE 34. *Cystic cancer of breast*.—Miss B—, æt. 43, for ten years has had clear discharge from her left nipple, gluing it to her linen. At times the discharge has been blood stained; she has had occasional sharp pain in the breast. The catamenia regular.

Seven years ago the lump was the size of a nut, now (April, 1882) it is the size of an orange.

The lymphatic glands and the skin over the breast are healthy. Breast excised by Mr. Shipman, of Grantham, and found to be cancerous.

The growth had clearly grown from a cyst.

CASE 35. *Cancer of breast following cystic disease coming on after prolonged suckling*.—Sarah C—, æt. 44, the mother of one child, which she suckled for three years up to six weeks ago, applied to me on April 25th, 1865, for a soft swelling the size of an egg in the outer lobe of her right breast. It was fluctuating, and had been coming two months.

Under tonics the swelling seemed to get smaller, but in June the skin over it became adherent and in July pus escaped from the nipple.

On August 17th the cyst burst and discharged a yellow serous fluid. The case then did well.

In January, 1866, patient reappeared with the breast generally infiltrated and fixed to the chest; the skin over the breast was likewise infiltrated and in one spot ulcerated.

At this time the diagnosis of an acute carcinomatous infiltration of the breast was easily made, and from the history of the case it seems probable that it originated within the cyst of which the report gives a history.

Had the cyst been excised when first treated, the cancerous disease might have been prevented.

CASE 36. Cystic carcinoma of breast following blood-cyst; excision of breast; return and death in one year.—Mrs. C—, æt. 58, nursed eight children without trouble. Lump in right breast for six months, having been preceded by a discharge from the nipple of blood for one and a half years. When I first saw her on May 5th, 1876, there was a cyst the size of a walnut on the outer side of her right nipple. By pressure all the sanguineous fluid could be squeezed out of it, and the wall of the tumour fell in, leaving a concavity. Pressure was applied to the tumour by cotton wool and strapping.

November 29th.—No tumour can be felt. The hollow beneath nipple is still distinct. No discharge from nipple for three weeks.

July 28th, 1879.—After the lapse of three years nipple retracting; some thickening in seat of cyst. No discharge from the nipple, skin slightly infiltrated over seat of old cyst. No axillary glands enlarged.

August 6th.—Excised breast; good recovery.

June, 1880.—Died with internal cancer.

The interest of this case rests on the fact that for at least four years before any symptom of local cancer appeared there was clear evidence of the presence of a duct-cyst. That the cancer developed in the cyst there can be little question, since it was in the seat of the cyst and of the gland over it that the first signs of carcinoma appeared.

It was a source of regret to me when I saw this serious trouble, that excision of the breast had not been performed earlier. The results might then have been different.

CASE 37. *Carcinoma involving mamma the seat of cystic disease; excision; return five years later.*—Mrs. S—, æt. 42, the mother of one child, consulted me in February, 1876, for a tumour in her left breast which she had discovered four months, and which has steadily increased.

Tumour was situated in the axillary lobe of the gland; nipple natural. Axillary glands free. The growth was clearly scirrhus.

Excision.—Axillary lobe infiltrated with carcinomatous material and simple cysts in other parts of the gland, one filled with inky fluid; no intracystic growths.

Good convalescence.

Remained well for nearly five years, that is till December, 1881, when signs of return of cancer appeared in the cicatrix.

CASE 38. *Cystic carcinoma of breast following upon ordinary scirrhus.*—Ann C—, æt. 60, came under my care in July, 1864, with an infiltration of her right breast. Three months later the skin over the gland became adherent and infiltrated and the axillary glands enlarged.

In April, 1865, a cyst appeared in the upper part of the tumour and rapidly increased, so much so that in July it threatened to burst. This, however, did not take place. In September chest complications appeared which destroyed life.

CASE 39. *Cystic carcinoma of breast; excision; cure.*—Ann C—, æt. 49, the mother of five children, all of whom she suckled.

For four and a half years had discharge of blood-stained fluid from the nipple, which could be increased by pressure.

The gland has been steadily enlarging during this period.

April 17th, 1865.—Breast large and nodular. Skin adherent to the breast and nipple retracted; tumour clearly cystic in its nature. The breast was subsequently excised and the patient recovered. The disease was, as suspected, cystic carcinoma, the gland being full of cysts and the cysts of intracystic carcinomatous growths.

CASE 40. *Cystic carcinoma of breast; sloughing of growth; hæmorrhage; removal; relieved.* (Reported by Mr. L. BURROUGHS.)—Harriet A—, æt. 70, was admitted into Lydia Ward on January 28th, 1879, under Mr. Bryant. She has had four children, the youngest of which is now thirty-five years of age. There is no history of tumours, and patient has always been healthy.

The patient first noticed a small lump in the axillary portion of her left breast ten years ago, and it has continued to increase in size since. On Friday evening last it began to weep with blood.

On admission.—The left breast is occupied by a hard infiltrating growth which implicates the skin and deeper parts, extending from near the left border of the sternum to the middle of the axilla, and from the third rib above to a point in a line with the ensiform cartilage. The breast is not distinguishable, and the site of the nipple is occupied by a depressed ulcerating induration marked with dilated vessels; the ulceration is superficial and covers an area an inch in diameter. External to this is a large, oval, fluctuating swelling, limited above by a deep furrow. The swelling is about three inches by two; the skin over it is thin, red, and livid; about the middle of it is a black spot, from which the hæmorrhage took place on the 24th inst. There is no enlargement of the axillary gland.

On the 28th and 29th more hæmorrhage.

January 30th.—The cyst has collapsed; the skin around the opening is sloughing, and it is discharging a foetid grumous-looking material.

January 31st.—*Operation.*—Two elliptical incisions were made from the median line of the body running obliquely downwards and outwards, about five inches in length and three inches apart at the centre. The whole of the breast and carcinoma were removed as far down as the pectoralis major. The wound was washed with warm iodine water, two silver sutures were introduced at the upper angle of the wound, and a piece of terebene lint applied over it with a bandage to keep the dressings in their place.

February 2nd.—The wound was dressed and the silver sutures removed.

3rd.—Temp. $99\cdot2^{\circ}$, pulse 80, and irregular.

4th.—Temp. 98.6° , pulse 108, more regular. Tinct. Ferri Perch. $\mathfrak{m}\mathfrak{x}$, Sp. Chlor. $\mathfrak{m}\mathfrak{x}$, Quin. Sulph. gr. j ter die.

6th.—Temp. normal. The wound looks more healthy.

10th.—Granulations look fairly healthy. There is not much discharge.

11th.—Patient feels comfortable.

March 10th.—The temp. has remained normal. The pulse became more regular, and the wound has been gradually filling up and healing, and the patient was discharged to-day convalescent.

The walls of the cyst after excision on section showed small round cells. The hard mass was evidently scirrhus undergoing fatty degeneration. It was in one large cyst which had ruptured. There were other cysts filled with cancerous growths.

CASE 41. *Cystic carcinoma of mammae, with cystic degeneration of breast; excision; relieved.* (Reported by Mr. UDALE.)

—Mary Ann W—, æt. 50, was admitted into Astley Cooper Ward on June 15th, 1878, with a hard swelling reaching from the nipple upwards two inches. The nipple was retracted and the skin was adherent to the growth beneath. The axillary lymphatic glands were not enlarged. Her previous history was good, as was that of her family.

It was only about six months before her admission that she first noticed a little pain in the breast, and a dimpling of the skin, beneath which was a small lump. The lump increased in size and became very painful when touched. She was advised to seek advice at the hospital, and saw Mr. Bryant, who advised the removal of the breast.

June 16th.—Chloroform was administered, and the breast removed. The mass was found to be cancerous, and cysts were found to be freely distributed throughout the gland tissue.

17th.—Temp. 102° , pulse 99. She complained of a bad headache, but the following morning became much better.

20th.—The wound was redressed, absorbent paper lint being used. The lower two thirds of the wound had united by primary union, the upper third was healing by granulations. She was ordered Haust. Sennæ as her bowels had not been opened.

22nd.—The wound was healthy ; there was not much discharge.

29th.—The wound had been healing well, but it had now in its lower third broken down again. There was also a little discharge from the upper part.

August 5th.—Her bowels had been very irregular since the operation and aperient medicine which had been given to her had upset her. Nearly the whole of the inner part of the wound had healed up.

From this date her progress was uninterrupted, and she left the hospital on September 17th convalescent.

CASE 42. *Recurrent carcinoma of mamma; excision; relieved; carcinoma of cyst.* (Reported by Mr. F. HITCH.)—Jane R—, æt. 47, a married woman and the mother of eight children, six of whom were living, the youngest being fifteen years of age, was admitted into Lydia Ward on 15th October, 1877. She had suckled all her children with her affected breast.

She had always enjoyed good health until about twenty months before admission, when she noticed for the first time a little lump in her right breast about the size of a walnut. Ten months later it increased rapidly.

On February 9th she was operated upon at another hospital, and the tumour was removed, leaving the breast and nipple, which were not infiltrated. She left the hospital on March 11th, with the wound perfectly healed.

On admission.—The patient stated that about two months after her discharge from the hospital she noticed a slight swelling in the cicatrix of the old wound as well as pricking pains; the growth rapidly increased in size until it became a circular tumour four inches in diameter, a little to the right of the sternum. It was hard to the touch, movable over the pectoral muscles and infiltrated the skin for three inches. The skin was purple and shining and had about its centre a small prominence.

October 23rd.—Chloroform was administered and the tumour was removed by two incisions enclosing a space about five by six inches; there was but little hæmorrhage. The growth had to be dissected off the pectoral muscles. The incision left a large cavity into which a metal porringer without the handle

might be embedded. This was left to granulate. One suture was, however, put in at the right hand side of the wound.

The tumour when cut into exhibited a large cavity containing serous-looking fluid. The walls were composed of very soft cancerous growth made up of epithelial elements.

The patient was a very nervous subject, and was very sick after the operation.

25th.—The sickness had continued ever since; she felt very weak.

26th.—The breast was dressed with absorbent cotton and terebene and the suture was removed. There had been no hæmorrhage and she felt very comfortable. The wound looked healthy.

29th.—The pus discharged was very thin.

30th.—She was ordered Mist. Quin. ℥j, t. d. s. Temp. 102·9°.

November 1st.—There was an inclination on the part of pus to burrow towards the axilla. The granulations appeared to be healthy.

5th.—The wound was getting smaller.

9th.—She sat up a little and felt better.

16th.—There was a small growth, the size of a cherry, noticed to be growing from the bottom of the fossa near the lower and right side. This was thought to be a portion of the old growth left behind after the operation. The following day it was removed. There was very little bleeding and not much pain.

21st.—There had been no increase of temperature. The patient was doing remarkably well.

December 7th.—The wound looked healthy.

12th.—She left the hospital.

Six months later this patient was well.

In this case the evils of a partial operation for carcinoma are well illustrated, for had the rule which is generally considered by surgeons as a binding one been observed, and the whole breast been removed when the primary tumour was taken away, the second operation would not probably have been called for.

CASE 43. *Cystic sarcoma of one breast; removal; followed in nine years by cancer in opposite breast.*—Mrs. W—, æt. 60,

the mother of one child, which she could not nurse as her nipples were retracted.

Twenty years ago she had a small lump in her right breast which disappeared entirely in the course of two years.

February, 1872.—Observed lump in same spot, which has increased rapidly, so that now (April, 1873) it is the size of a cocoa-nut. Tumour clearly lobulated and cystic; axillary glands free.

The breast was removed and was clearly cystic spindle-celled sarcoma; a good recovery followed the operation.

June 14th, 1882.—A tumour appeared in left or opposite breast which infiltrated gland and gave rise to retraction of nipple and puckering of skin, an example of ordinary carcinoma.

Nothing was done as the patient refused to be operated upon.

This case is worthy of record as an example of a patient having a carcinomatous tumour of one breast follow upon the removal of a cystic sarcomatous tumour in the other, although at ten years' interval. Such cases are rare.

I have, however, now under observation a lady, æt. 66, who has had for at least ten years a perfect specimen of scirrhus carcinoma of her left breast which has remained unchanged for three years, whilst in her right she has had a rapidly-growing round-celled sarcomatous tumour removed with recurring growths on twelve occasions, during the three years, her general health being perfect.

CASE 44. *Cystic carcinoma of breast.*—Mrs. R—, æt. 83, the mother of many children, all of whom she had suckled, consulted me on June 27th, 1877, for a cystic carcinoma of her left breast which had been coming on for one and a half years.

The tumour was of the size of an orange and fluctuating. Skin over it infiltrated, but not the axillary glands. Nipple natural.

Maternal aunt had had cancer.

No operation advised on account of age.

ANALYSIS OF CASES.

The cases quoted, as seen in the table, include a good example of cystic degeneration of the breast in a married woman aged fifty-two; a second of cystic degeneration of the gland in a young married prolific woman aged thirty-four, the disease having attacked a gland which had never secreted milk although it had all the appearances of being healthy. In such a case degenerative glandular changes might be fairly looked for earlier than in glands which have been physiologically active.

Eight cases of simple non-proliferous cysts, three of which occurred in single women under forty years of age and five in married women, four of whom were sterile; cysts apparently being more frequently found in glands that have not been doing active duty than in others.

Four examples of simple sero-cystic disease are quoted, one in a single woman and three in married women, two being prolific. Only one of these patients had passed the age of forty.

Eighteen cases of cystic sarcoma with more or less adenoid structure. Six occurred in single and thirteen in married women, ten of whom had borne children. Two of these were under 40 years of age; 12 between 40 and 50, the remainder being 53, 63, 70, 71, and 71 respectively; the late period of life at which this disease attacks women being remarkable.

Twelve cases of cystic carcinoma.—All but one occurred in married women, and of these nine had been prolific. Six were in subjects between 41 and 50 years of age, and six in older women, aged respectively 56, 58, 60, 60, 70, and 83.

Taking the whole number of cases in which the cysts were proliferating as thirty; two only occurred in subjects under 40; seventeen in women between 41 and 50; five between the ages of 51 and 60; and six in subjects between 63 and 83.

TABLE OF TREATMENT.

Three of the ten examples of simple cyst were punctured with good results; four were incised, plugged, and drained; one suppurated and was treated as an abscess; two were excised.

The lobule affected in one of the four examples of sero-cystic disease was excised and the whole gland removed in the other three cases.

Of the eighteen cystic sarcomatous cases, in four the diseased lobe alone was removed; in nine the whole gland was taken away, and in five no operation was performed.

Of the twelve examples of cystic carcinoma, in nine the diseased gland was removed, in three no operation was undertaken.

Of the forty-four examples of cystic disease of the breast three fourths were of a simple or sarcomatous nature and one fourth carcinomatous.

	SOCIAL CONDITION.						Number of cases.	AGES.										
	Single.	Married.			Sterile.	=		Under 30.	Between 31 & 40.	Between 41 & 50.	Between 51 & 60.	Over 61.						
Cystic	3	...	3	...			4	=	10	=	1	...	5	...	3	...	1	...
Sero-cystic	1	...	2	...	1	=	4	=	0	...	3	...	1	...	0	...	0	
Cystic sarcoma	} 6	...	10	...	3	=	19	=	0	...	2	...	10	...	2	...	4 { 63, 71, 70, 71, respectively.	
Cystic carcinoma		} 0	...	9	...	2	=	11	=	0	...	0	...	7	...	3	...	2—70, 83, respectively.
Cases	10		...	24	...	10	=	44		Cases	1	...	10	...	21	...	6	...



PLATES I & II,

Illustrating Mr. Bryant's Paper on Cystic Tumours of the Breast.

PLATE I.

FIG. 1.—Microscopical appearance of breast undergoing cystic degeneration. From Case 1. A drawing of a section seen under Hart. oc. 3, obj. 4, tube out.

FIG. 2.—From Case 31. Of cystic adeno-sarcoma of the breast. It shows the cells lining the wall of the large cyst. Hart. oc. 3, obj. 7, tube out.

FIG. 3.—Case 31. From an outlying part of the breast, where it looked hard and grey. It shows spaces filled with cells, as well as others lined with them, and a fibrous matrix.

FIG. 4.—Case 31. A lobule showing cell proliferation, with destruction of the walls of the acini. A change going on widely through the breast.

FIG. 5.—Case 33. A representation under Hart. oc. 3, obj. 7, tube out, of the cells lining the spaces seen in the woodcut, fig. 2. A fibrous septum is shown with cells on either side, also the definite border where the cells limit the lumen. The few granules represent those composing the greenish-yellow thick material filling the spaces.

PLATE II.

FIG. 1.—Cystic-duct sarcoma. Case 30.

FIG. 2.—Cystic-duct adenoma. Case 18.

FIG. 3.—The pendulous intracystic adenoid growth from Case 17. The pedicle was small, and is represented here as being too wide.

FIG. 4.—A section of the same seen under Hart. oc. 3, obj. 7, tube in.

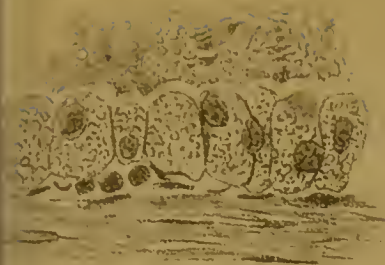


Fig. 2.

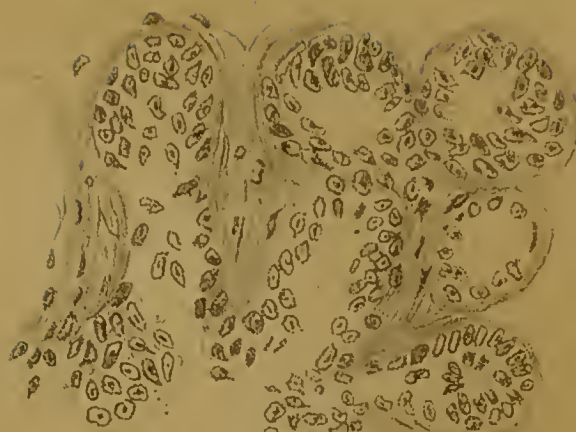


Fig. 4.

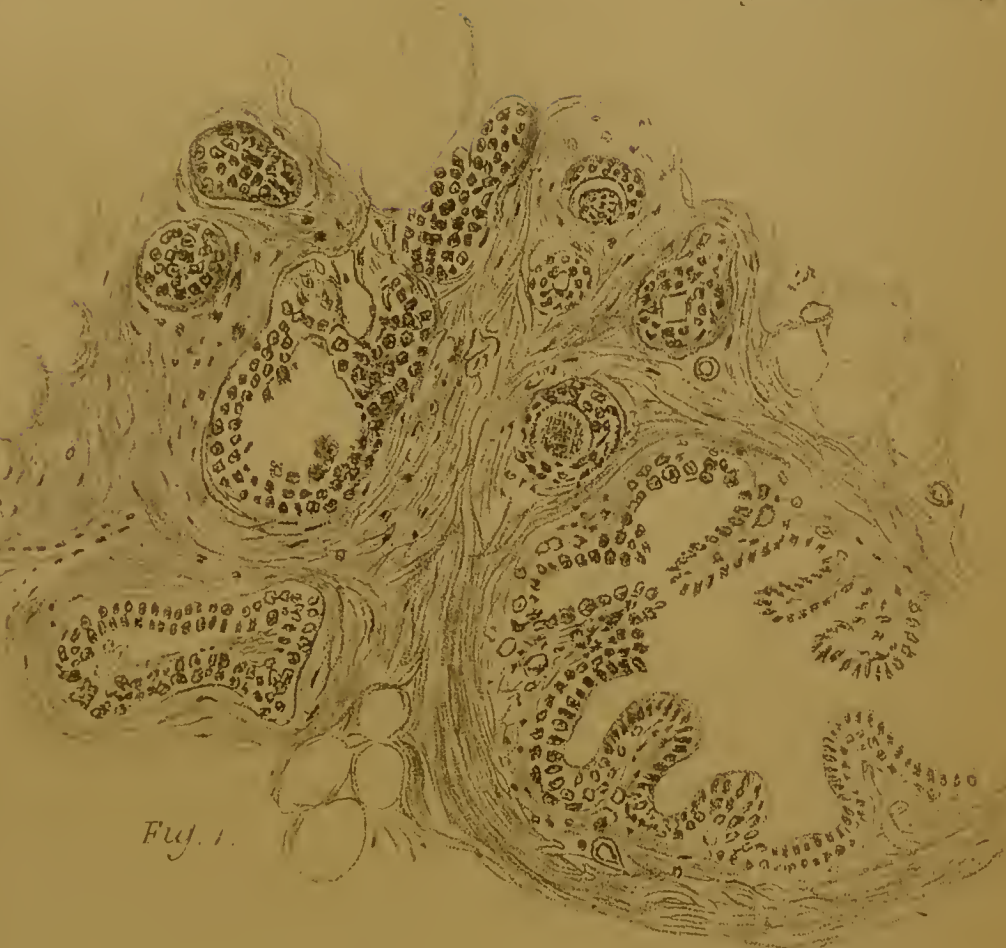


Fig. 1.

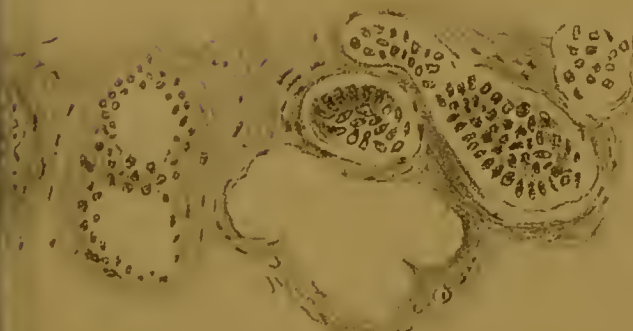


Fig. 3.



Fig. 5.

K



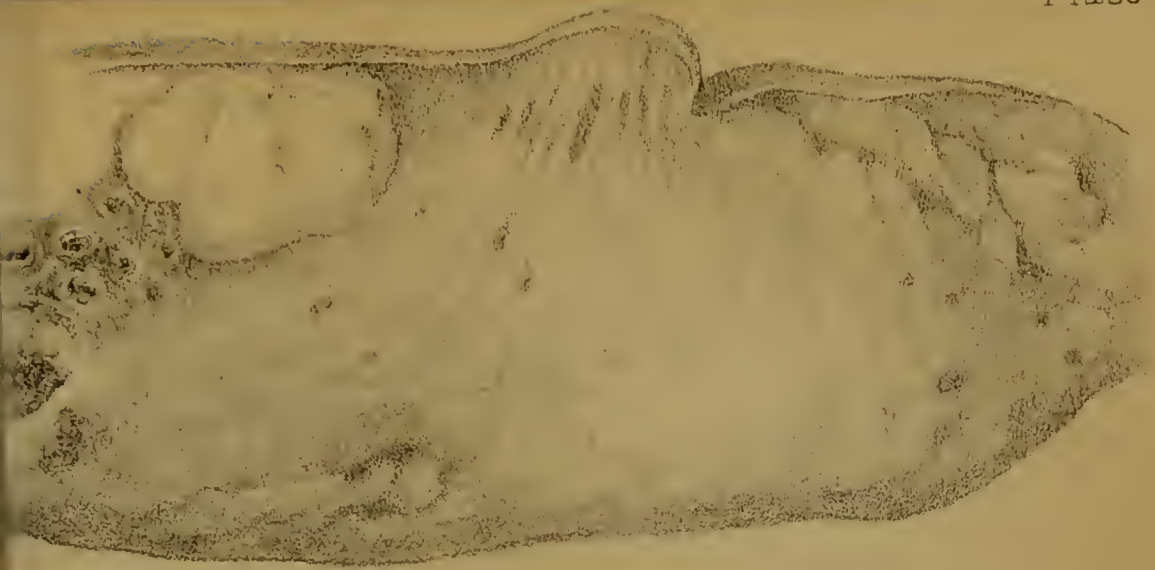


Fig. 1.

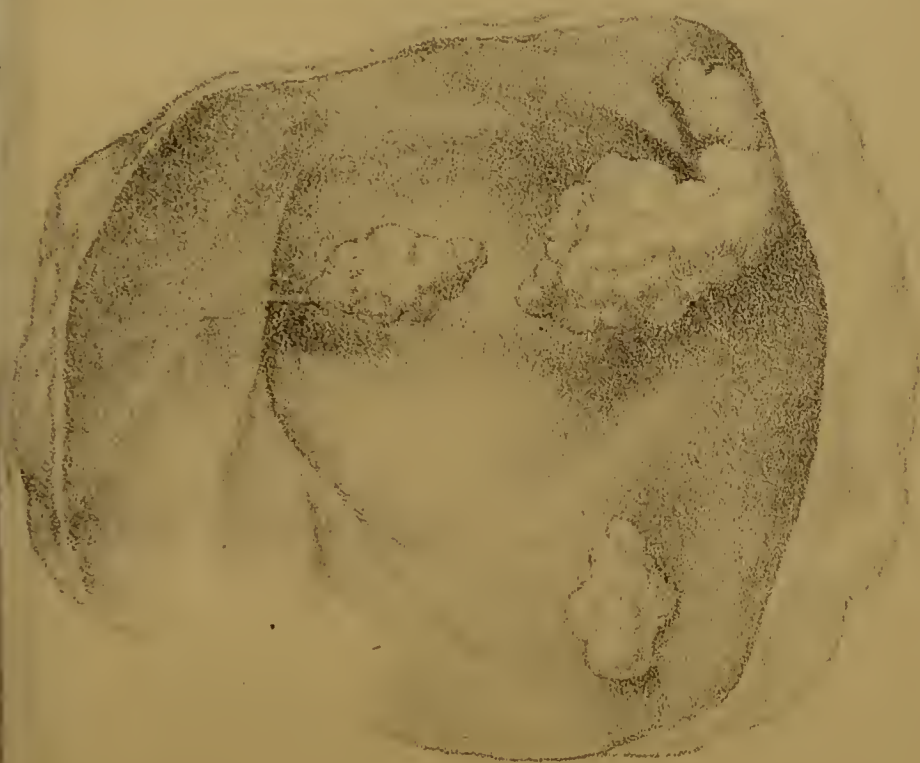


Fig. 2.

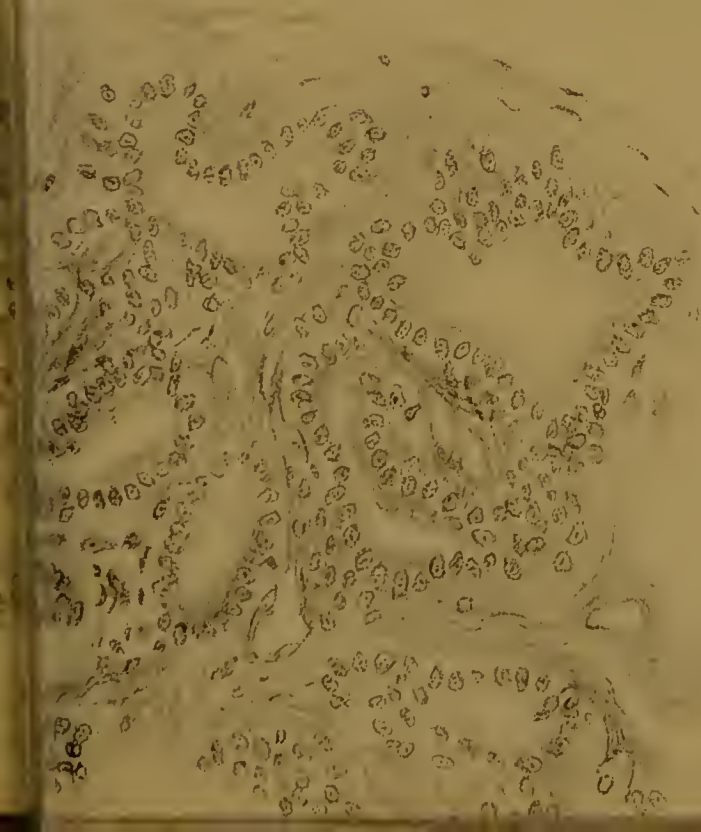


Fig. 4.

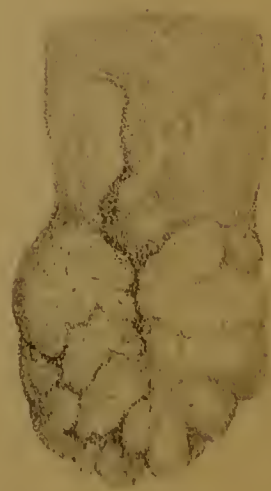


Fig. 3.

